

What is claimed is:

1. A method for producing an avian chimera using spermatogonial cells, which comprises the steps of:
 - (a) retrieving a testis from a donor ave;
 - 5 (b) isolating a testicular cell population from said testis;
 - (c) culturing said testicular cell population in a medium supplemented with a cell growth factor to obtain a spermatogonial cell population; and
 - 10 (d) injecting said cultured spermatogonial cell population or said testicular cell population into a testis of a recipient ave to produce said avian chimera.
2. The method according to claim 1, wherein said step (b) is conducted by treating a tissue of said testis retrieved with collagenase, trypsin or mixture thereof.
3. The method according to claim 1, wherein said cell growth factor is selected from the group consisting of fibroblast growth factor, insulin-like growth factor-1, stem cell factor and combination thereof.
4. The method according to claim 1, wherein said medium further comprises differentiation inhibitory factor.
- 25 5. The method according to claim 1, wherein said differentiation inhibitory factor is leukemia inhibitory factor.
6. The method according to claim 1, wherein said medium

contains a supplement comprising a mixture of fibroblast growth factor, insulin-like growth factor-1 and leukemia inhibitory factor.

5 7. The method according to claim 1, wherein said medium further comprises a serum and an antioxidant.

8. The method according to claim 1, wherein said step (d) is conducted by injecting said cultured spermatogonial cell population or said testicular cell population into the 10 seminiferous tubule of said recipient.

9. The method according to claim 8, wherein said step (d) is conducted by injecting said cultured spermatogonial cell population or said testicular cell population into the most 15 upper portion of the seminiferous tubule of said recipient.

10. The method according to claim 1, wherein said ave is selected from the group consisting of a chicken, a quail, a 20 turkey, a duck, a goose, a pheasant or a pigeon.

11. The method according to claim 1, wherein said donor and said recipient are different species.

25 12. The method according to claim 1, wherein said method further after the step (d) comprises the step of conducting a testcross to verify whether said recipient injected with said cultured spermatogonial cell population is chimera.

13. An avian chimera characterized in that it maintains spermatogonial cells of a donor in its testis, it has the ability to produce spermatozoa from said spermatogonial cells and said spermatozoa undergo a germline transmission into 5 progenies.

14. The avian chimera according to claim 13, wherein said avian chimera is produced by any one of the methods of claims 1 to 11.

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15. A method for producing a transgenic ave, which comprises the steps of:

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- (a) retrieving a testis from a donor ave;
- (b) isolating a testicular cell population from said testis;
- (c) culturing said testicular cell population in a medium supplemented with a cell growth factor to obtain a spermatogonial cell population;
- (c') transferring a foreign gene into said cultured spermatogonial cell population or testicular cell population;
- (d) injecting said cultured spermatogonial cell population or testicular cell population into a testis of a recipient ave; and
- (e) producing a progeny from said recipient to obtain said transgenic ave.

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